GHGS

GESELLSCHAFT FÜR
HÜLSENLOSE GEWEHRSYSTEME MBH

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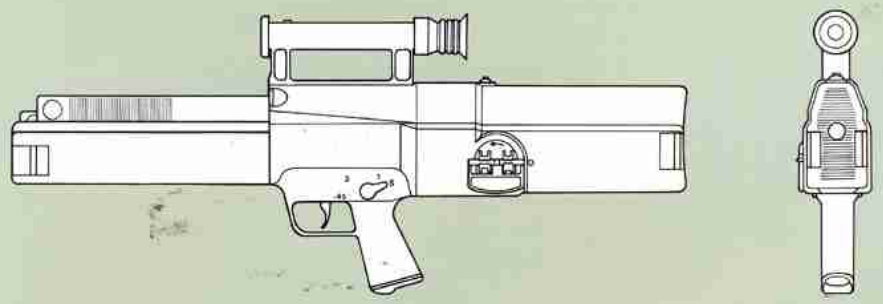
HECKLER & KOCH
Dynamit Nobel

Weapon-Ammunition-System

G11 Rifle

with caseless ammunition

Technical Data

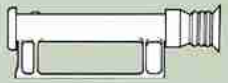


Calibre	4.73 mm × 33 (0.185 in)	Modes of fire:	
Type of ammunition	caseless	• Single fire	
		• 3-round burst	
Length of weapon	750 mm	• Sustained fire	
Width of weapon	74 mm		
Height of weapon	295 mm	Theoretical rates of fire:	
		• 3-round burst	> 2000 rounds/min
Weight of weapon		• Sustained fire	approx. 450 rounds/min
with 2 magazines	3.8 kg (8.38 lb)		
loaded with 90 rounds	4.3 kg (9.48 lb)	Max. shoulder pressure:	
		• 3-round burst	approx. 160 N
Weight of reloading unit		• Single and sustained fire	approx. 110 N
including 15 rounds	0.11 kg (3.89 oz)	Magazine capacity	45 rounds
		Combat range	> 300 m (328 yd)
Barrel length, less chamber	540 mm (21.26 in)	Steel helmet penetration	up to 600 m (656 yd)
Rifling twist length	155 mm (6.10 in)	Operating principle	Gas-operated, cartridge in chamber
(Right hand twist)		Breech principle	Cylindrical drum

Caseless ammunition

Length	33 mm (1.29 in)	Ignition	mechanical
Cross-section	8 × 8 mm (0.32 in)	Mean gas pressure	3850 bar
Total weight	5.20 g (0.18 oz)	Muzzle velocity V_o	approx. 930 m/s (3051 ft/s)
Projectile weight	3.25 g (0.12 oz)		

Optical sight



Magnification	1:1
Entry pupil	10.0 mm (0.43 in)
Exit pupil	9.5 mm (0.37 in)
Pupil clearance	46.0 mm (1.81 in)
Field of view	200 mil
Eyepiece adjustment	–6 dpt
Light transmission	> 85 %

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Subject to technical modifications

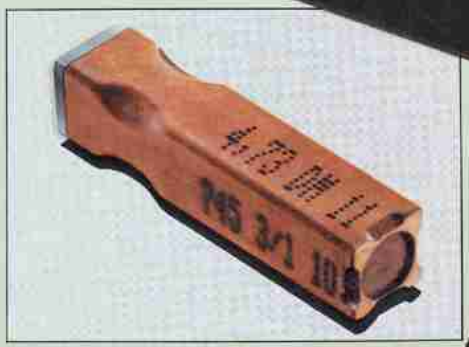
3 1688 4000 HDM MÜNCHEN

G 11 – the new weapon-ammunition-system with caseless ammunition for high hit probability.

This new technology has, for the first time, provided a solution meeting the tough demands of a modern battlefield.

The G11 Rifle with caseless ammunition sets new standards

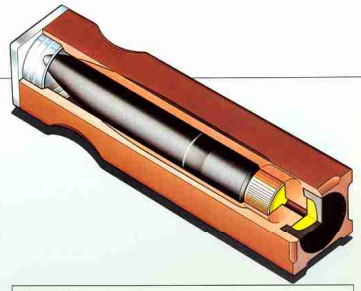
- High hit probability even under combat conditions
- Quick readiness to fire
- Maximum reliability under all environmental conditions
- No impeding recoil effect on the shooter
- Low system weight
- Compact form
- No ejected cases
- Simple care and maintenance
- Short training times for users
- Small cartridge dimensions
- Low cartridge weight
- Large number of rounds can be carried



Technical features of the G11

The caseless ammunition

The propellant body of the caseless round has a quadratic cross-section, thus avoiding unused space in packages and magazines. In order to achieve optimum exterior and terminal ballistic performances, the projectile combines an extremely slim ogive shape with a high sectional density. The effect on soft targets is in accordance with international conventions. Even at short ranges the round does not fragment in the soft target medium. Penetration capability through steel and concrete is comparable with conventional ammunition of larger calibre. The penetration performance against hard targets is so high that a German steel helmet (NATO test standard) is penetrated with a soft core bullet at ranges up to 600 m.



Ammunition packaging

The water-tight ammunition pack doubles as the reloading unit. These reloading units are so small that they can be stowed almost anywhere. The caseless ammunition is absolutely safe. In the absence of a case no overpressure can be generated by exposure to fire or bullet impact.
The risk of cook-off is largely eliminated by the extremely high self-ignition temperature of the propellant.

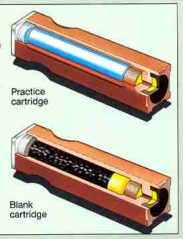
Ballistic table

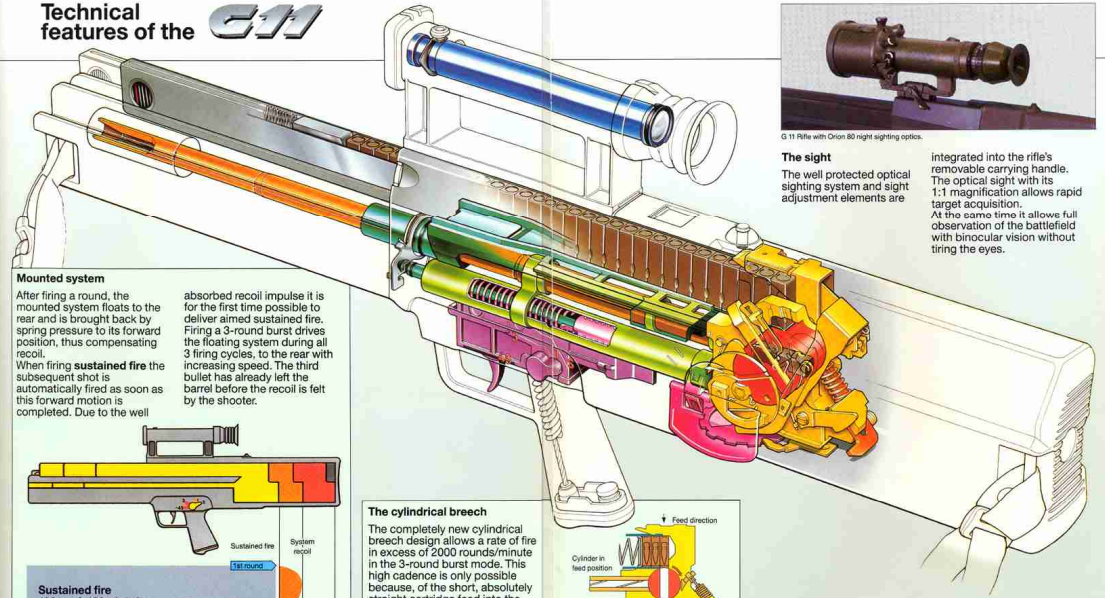
Range (m)	0	100	300	600
V approx. (m/s)	930	840	660	450
Time of flight (s)	0	0.11	0.38	0.94
Kinetic energy (J) approx.	1400	1120	710	330
Trajectory elevation (m)	0	0.02	0.17	1.07
Crosswind drift (m) wind velocity = 10 m/s	0	0.06	0.5	2.8

Types of ammunition

In addition to the combat cartridge with jacketed softcore bullet, the following types of ammunition are available:

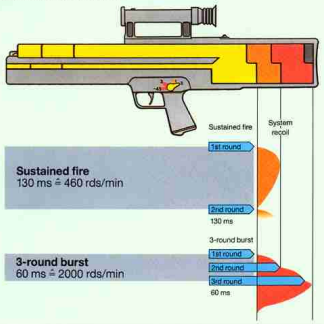
- Combat cartridge with soft-core tracer bullet
- Practice cartridge with plastic training bullet and plastic training tracer bullet
- Blank cartridge
- Dummy cartridge





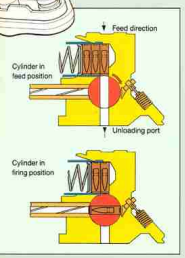
Mounted system

After firing a round, the mounted system floats to the rear and is brought back by spring pressure to its forward position, thus compensating recoil.
When firing **sustained fire** the subsequent shot is automatically fired as soon as this forward motion is completed. Due to the well absorbed recoil impulse it is for the first time possible to deliver aimed sustained fire. Firing a 3-round burst drives the floating system during all 3 firing cycles, to the rear with increasing speed. The third bullet has already left the barrel before the recoil is felt by the shooter.



The cylindrical breech

The completely new cylindrical breech design allows a rate of fire in excess of 2000 rounds/minute in the 3-round burst mode. This high cadence is only possible because, of the short, absolutely straight cartridge feed into the vertically positioned chamber. The cylinder with the chamber carrying the cartridge is then rotated 90° into the firing position. The cartridge is mechanically ignited. The propellant gas drive rotates the cylinder back into the feeding position, the next cartridge is chambered and the cylinder tilted again into the firing position.



G 11 Rifle with Orion 80 night sighting optics.

The sight

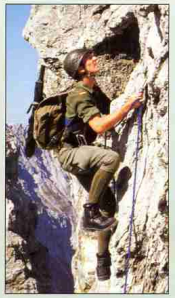
The well protected optical sighting system and sight adjustment elements are integrated into the rifle's removable carrying handle. The optical sight with its 1:1 magnification allows rapid target acquisition.
At the same time it allows full observation of the battlefield with binocular vision without tiring the eyes.

The receiver

All moving parts of the G 11 are protected in a completely sealed receiver.
This not only guarantees operation under adverse conditions, but also considerably simplifies care, maintenance and logistics. The G 11 remains fully functional under all climatic and operational conditions.

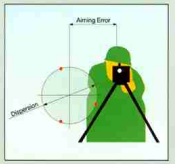
All materials are chosen to resist corrosion, wear, NBC war influences as well as all kinds of chemical substances. Visible light and IR light reflection is reduced to a minimum. The smooth surface facilitates easy decontamination.

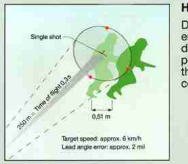
Combat analyses show that conventional rifles achieve only low hit rates.
Physical fatigue, target motion, battle noises, enemy fire, etc. handicap the gunner when he tries to properly aim his rifle.
The G 11 achieves its high hit probability by firing **automatically limited three-round bursts** with defined dispersion! This weapon dispersion does not depend upon the shooter or his training level.



System comparison

G 11	M16 A2	G3 A3
Calibre 4,73 mm	Calibre 5,56 mm	Calibre 7,62 mm
90 cartridges carried in magazines + 28 filled reloading units	30 cartridges carried in magazine + 7 spare magazines	20 cartridges carried in magazine + 4 spare magazines
makes a total of 510 cartridges available to the soldier	makes a total of 240 cartridges available to the soldier	makes a total of 100 cartridges available to the soldier
7,35 kg	7,35 kg	7,35 kg





Hit probability

Despite aiming and lead angle errors the 3-round burst with its defined dispersion increases hit probability considerably and thus also reduces ammunition consumption.